

ABSTRACT

A fuel reforming apparatus and fuel reforming method capable of controlling activation of a catalyst by use of a simple arrangement and taking out hydrogen from a fuel gas is provided. A fuel fluid is passed to a catalyst passage formed with a catalyst unit, light is locally irradiated on the catalyst passage, and a hydrogen gas is taken out from the fuel fluid that is in contact with the catalyst unit in a region of the catalyst passage irradiated with the light. The light irradiated on the catalyst unit may be a laser beam, UV light or a combination of the laser beam and UV light. The region of the catalyst unit irradiated with the light may be changed to improve an efficiency of taking out the hydrogen gas, or an output of the light irradiated on the catalyst unit may be controlled to control an amount of hydrogen gas taken out from the fuel fluid.